

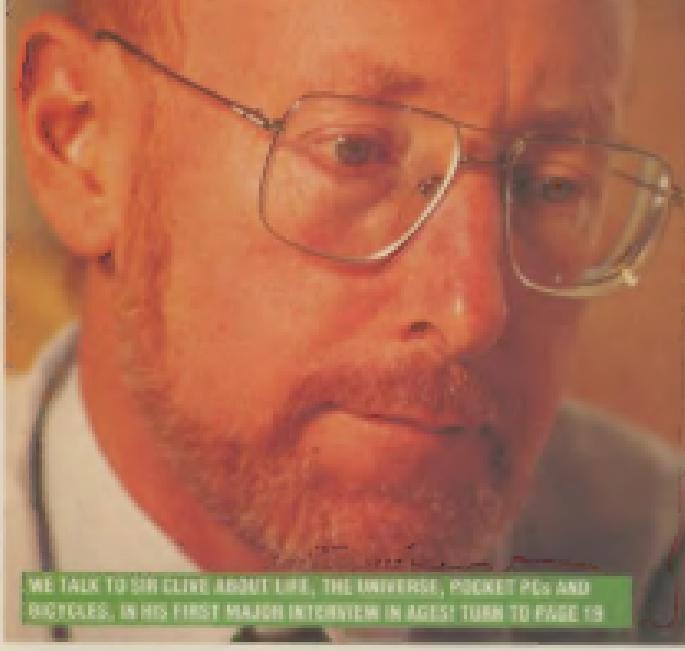
POPULAR COMPUTING WEEKLY

FIRST WITH NEWS AND REVIEWS!

55p

AUGUST 3 1989

SINCLAIR SPEAKS



WE TALK TO SIR CLIVE ABOUT LIFE, THE UNIVERSE, POCKET PCs AND
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BUDGETS BURST OUT

ITWO's new budget games labels are being launched this summer, bringing a host of new games and some re-releases to the £10 market in 12.5%.

Microdoctors is the name of a new company set up by Jonathan Elgar. The first games for all the major 8-bit machines are expected to be in the shops at the beginning of September, priced at £7.99. Games will be in cassette format initially with disk formats following later.

Units of disk or equipment are provided for the first games in complete pack game, some of which will be three-ways. When described as a "unit load strategy" called "Timing" is currently top of the list. It runs on the C64 and has over 400 scrolling scrolling screens.

Elgar, who previously ran a company called Computer publishing, will be the spokesman, accompanied



Elgar's independent company plans to produce 10 new games.

"We are a completely independent company and all our games are original. Once the label is established we will not use full price labels and perhaps that will help influence us well."

Similarly, this week sees the launch of a new budget label by the man who has previously opened up markets for the likes of Microcom, Code Masters and Pinball games as distributor. "But we do it in the reverse way so why not call it the reverse?" commented a company spokesman.

New Wizard Billy has formed a new budget label, C64s, and issued a track catalogue sheet with Games for 12.5% games, all of which will retail for £7.99. The first releases will be MAME, Colour Pinball and Kevin Walker's C64, Asteroid, Spectrum and Amstrad 8-bit versions. Subsequent releases will be mainly 12.5% games already available.



Mavis on a QWERTY

MITSUBISHI is certainly launching some interesting software lately - challenging the established C64 and Amstrad game market is a crop of productivity software. New titles include Zing, Mavis, Amiga, Doctor, Cycling and The Secretary Bird.

Zing is a 3-D graphics package for

the PC and Mac that allows users to create images to be transported between the two machines. Symmetrical 3D stages are created by an editor on one which then presented by a grid of resolution by rotating the editor around the axis.

A profiler allows users to draw multiple 2-D cross sections in produce 140 images. Price is £49.95. Zing is aimed at Amiga and PC users and is compatible with all major packages. Mavis Doctor Teacher Doctor is a writing program with a difference for the Amstrad ST, Amiga, Apple II GS, Mac or PC. In-built AI routines supposedly tailor your lessons to your ability but Mavis, your inquisitive instructor, has some pretty neat tricks up her sleeve. One lesson involves a road race, in which you set out following arrows in a race track as a fast car zooms past and the game advances you into a typing module. The price is £29.95.

The Secretary Bird is a three-in-one pack for the PC with a WP, spelling, doctor, doctor and spreadsheet. The price is £29.95. Mitis can be evaluated at 081 480 545.

• **Freddy Freddy** preview, see page 12 in this issue.

It's not surprising to make a series of TV ads - can you imagine the cost? - Applications are considering what lies in the user-to-host-interface-and-large-and-small-spaces will come out with. Maxis' "Dogs" - half of the set of other releases will be 90 percent of all known dog breeds. "T

• **Two large games** previewed, page 13.



Dead PC1 may live

ITWO's EABI, above, the previous new marketing division of Commodore, may revive the firm's cheap PC range, the PC1, which was priced at £199. The number-declined since this year when supplies dried up after German officials refused to let PC1s, Commodore Germany, which supplies hardware to the U.K., stopped making the base model.

In the U.S., there are 100,000 Amstrad PC100s at £299 the cheapest PC available. An exclusive interview with Popular Computing Weekly, said and is considering re-launching the 8088-based machine if there is sufficient demand. Future plans for the C64 PC line, says EABI, include memory and media ported images, and two models based on the 8086 and 8088. Current sales of the 1600s £280 and 2000s are still steady, with no new lines being offered.

Meanwhile, over Amstrad has issued budget £299.95 launch day for the TV, the Amstrad 1000 12" workstation.

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Divisions among friends.

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Which computer do you own? Do you conform to Gervase's stereo-types?

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Stepwatch - a program-timing device for the Amiga.

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Inseparable cyborg Duncan Evans heads off to the Alexandra Palace.

IBM 5200/9200, p.36

Linking the Amiga 500 and a terminal ... BBC batters ... ST mice ... CPC emulators ... Spectrum joystick interface ... and more.

REDSACK, p.38

A home programmeer's palette for the 'good old days'.

Advertising consolation

IMPACT seems well sorted. Sega's silicon TV sets - Sega has appointed the agency that does the business and

NEW AMIGA, C64 PACKS

DATAFILE Details of three new Amiga and C64 packs have been offered by Popular Computing Weekly.

Independent software publisher, The One Company, has put together the packages, which sources note will not be officially endorsed by Commodore.

There are two Amiga packs and one for the C64 on the market. These are expected to include:

- The Starter Pack, costing at £39.99, the Kiosk Works 2.0 word processor package and three games, including Buggy Day and Cross City.
- The Home Office Pack, costing at £39.99, The Publisher's Choice DTP package made up of Kiosk Works 2.0 plus PageWriter 1.0 and a database.



Calling the Home Office with The One Company

■ The C64 Test Pilot Pack; this special home box will include the simulators and all flight sims for the C64, including

by Advanced Tactical Fighter, from Digital Interactions.

Sources suggest that both the Starter and Test Pilot packs are already being test marketed in New Zealand and Belgium respectively, where The One Company has subsidiaries.

The packs are expected to be launched in the U.K. either before or during the PC Show - although currently the One Company will not be exhibiting dealers and distributors are expected to show the products.

Popular Computing Weekly understands that the bundle prices are likely to be as follows: £39.99 Starter Pack, £39.99 Home Office Pack, £49.99 and C64 Test Pilot Pack, £39.99.

Hackers get the message

DATAFILE Sans has come down like a ton of bricks on Hackers in the last week, with Kevin Mitnick jailed for a year and the announcement that alleged Postscript virus spreader Robert Morris has been charged by the Department of Justice.

Mitnick was convicted of using other's passwords in access computers. He will serve one year in jail and six months in rehabilitation at a halfway house.

Robert Morris, whose alleged crimes in the Postscript Internet worm virus 600,000 U.S. terminals last October, will be charged with illegal manipulation of a 60,000 machine network. The worm program exploited a bug in Postscript that allowed it to tag itself with a small message.

Photon Paint under an illusion

across the strength between motivation and Microlattice, one who would distribute Photon Paint 2 and Motiv 3 in the U.S., it seems that Microlattice, who produce the packages in the U.S., have won.

The packages have been available in the U.S. for over a year now but have only made appearance this side of the Atlantic in data form and are in need of de-bugging. However, the products are now in the shops and are being distributed by Microlattice Europe, which can be contacted on 0808 978000.

Fonetic thisorus flaw Ameega

KUMA CLAIMS to have the first stand-alone dictionary for the Amiga. Based on Longman's Pocket Thesaurus, Kuma has over 20,000 words and phrases offering users of word processors or even databases in expand their vocabulary.

A phonetic spelling checker looks for alternatives to words based on how they sound rather than how they are

spelt. This is expected to help users when first learning to use English.

Please note that an extra disk drive is required to fit the disk as the standard Amiga is insufficient to run it.

A special offer price of £29.99 inc. V.A.T applies to Amiga for the Amiga and for the PC and ST versions already available. Contact Kuma on 0730 4388.

Sculpted Amiga

AN INCREASE of between 500 and 1000 points in basic ray-tracing speed is claimed for the enhanced graphics package Sculpt 1000, on the Amiga.

If you still feel the process bottleneck open you to Popular, this package allows you to create your own sculpture, says Martin Lewis of the Amiga Centre, Tonbridge. Amiga 3D features are sophisticated and enable options to simulate the process of organic objects, a range of surfaces including faceted, curved and curved and intersecting-surface rendering, which are common graphics modes supported. Contact the Amiga Centre (London) on 081 591 0288.



Jim Hayes, developer of 3D tools for the Amiga as seen at IBC 88.



Jim Hayes, developer of 3D tools for the Amiga as seen at IBC 88.

SAM develops

SOFTWARE developers have to start working progress for the long-awaited SAM Coupe, as it costs £200 software to take advantage of the Coupe's extra graphics and video capabilities, will soon be enhanced by.

Professional software is mostly written in assembly language using development systems. Programme's Development System (PDS), the most popular, runs on PCs and computer workstations, software tools and a special interface for the target machine. MGT are collaborating with PDS to produce the development system for the SAM Coupe, as can be used in conjunction with the the Imagine graphics package and will be available before the Coupe's launch.

IN BRIEF

Chartbound

DATAFILE... a new release from game-makers Soga, Inc. has made its way into the U.S. game chart as number 1. Following an increased popularity in console games, Soga attribute their success to a strong list of over 80 games with an average of 100,000 units sold each month.

Soga's distributor, Virgin Mastertronic has announced a new deal with Disney which will mean the Master System Plus is standard in all their franchises.

Miracom up for sale

MICROH owner Miracom has gone out into the hands of investors while the firm sets out to broaden its base. Following the failure of a buy-out by the firm's suppliers, UK telephone manufacturers Cark Unity has been called in as an alternative customer while an alternative buyer is sought. Managing Director Steve John said: "We are the only people who have the support of UK telephone and I have every confidence we will continue trading." Full warranties apply to all models and under the administration of the receivers.

BT takes over Micronet

BT 1990 Telecoms has announced an increase in its holding of shares in Telecom Group, publishers of Micronet, from 40 percent to 100 percent. John Williams of the BT Home and Public Services division said: "Telecom's successful products such as Micronet, Link Business, and Sharex will form a key sector in our activities."

ST gets TEX-ed

DATAFILE the first processor and operating program designed by Popular Science, is now available in public domain the PDSys Amiga ST. It is supplied on four double-sided disks for 1.44mb plus four floppy disks (Softwiz Library, PDS Amiga ST, PDSplus, PDS Amiga ST).

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LONDON WC1**

STAR LETTER

Lead-free in his pencil

I wholeheartedly agree with David Bright's comments regarding the environment. The bubbles involving modern electronics are more environmentally friendly than some other parents but at what cost? Historically, how much damage has been done to the environment in terms of the present state of affairs?

Furthermore, I wonder what proportion of electronic waste are bought by various hedgefunds compared to those buying gallops in order to 'keep up with the Jones' with regard to the environmental cost of their acquisitions.

You mention the use of calculated prices but what of the extra expense when requiring more frequent replacements - at what cost to the



WRITE TO:
Popular Computing Weekly,
Greencoat House, Francis Street,
London SW1P 1DG.

environment - perhaps even greater than using leaded pencils. I could go on...

Perhaps we should encourage the National Construction Engine that perhaps the environmental may need a chance if it's not already too late.

Paul A.P. Bruce, Milton Keynes

Going loco

I have an Amstrad 6060 and for writing a book on my latest cooking efforts, after changing from Lucas 1 to Lucas 2, I now the problem of changing layouts for the insertion of equations and lists, although for my purposes only margins and figures are involved and although I can switch esp., I cannot get them on to Lucas Layout for my needs. Has anyone got back to the original layout without changing each?

When I worked with Lucas 1 I had no such difficulty and, although I have tried to follow the Lucas 2 guide, somehow to either I fall down on the process and have reached the point of giving up unless I can get some valuable help.

Some of the trouble is that, being inexperienced, just for my simple

use, all I want is to change type size and margin, to have this layout named 'QUOTE' (or a number), to bring it up with only one or two actions and, when completed, to get back to the first Layout with a single action. I do not want anything else, which might confuse me.

Charles Jackson, Bedford

Such layouts are changed from the **13** (selected and copy menu before you change the headers), **20**, **other settings**, **font**, **TEMPERATE**, **size**, **12** and **10** (10 and **12** are **100%** of the previous to reflect **LUCAS**). Then **select** **FORMAT** **100%** **LAYOUT**. The layout will then come up, choose your layout and press **ENTER**. Then click the layout to open it. With **12** you can now **10** (QUOTE) or whatever. Then press **CANCEL** and go back to the template, **Done** **2**. There is no

Lost tome

Some time ago I purchased *Euclidean Geometry* from Taproot, Published Limited, from their Euclidean Application Through Learning series. Unfortunately I have lost the book. Has anyone accompanied the program and feel I am unable to run the program without it.

I have been in touch with Taproot, but they say there are losses because this range of software cannot be of any assistance to me.

I am hoping that perhaps one of your readers could put me in touch with someone who could supply me with the book I need to run the program.

E. Christopher, 25 Bonham Avenue, Balfour Estate, North Shields, Tyne and Wear NE25 8JG.



Just say no

Dear PCW,

This week, after many months of trying to get rid of a virus called SCA and its variations from my collection, I succeeded. Now, another more prolific virus has started to apply itself to my innocent host of Lucas 2. If you have, what can I do to kill it? I am quite honestly at my third Lucas 2.

No profit

I would like to call readers that the CIVIC & RADICAL Party Group has published 'Volume One' of its Modern Software Library Catalogue. This volume covers the UK Radical Library, the PC-Blitz Library, Anti-Bag Software, and ALDE Publishing's PC-1000.

All this software is now available in members of the group for details of the catalogue and of membership, please contact Mrs Diana Hartley at 11 Hill Road, Hove, Brighton.

Euclidian geometry group

I am writing to inform you of a new user group which has been formed to support users of the Euclidian 20 degree program, David.

However, as the group is known, will be an amateur university, of 200, possibly a quarterly newsletter including David's articles, hints and tips, lessons in the form of a disc.

The first issue will be available in October, then January, April and July.

Members will be encouraged to exchange ideas and material through the group in order to increase the effectiveness of both David and the textbooks.

Further membership details are available from David's address, Arc Computer, 40333 25200.

Richard Molyneux, chairman
Organiser

as pirated software - I bought SCA a few years ago, so, however, we have I tried to track my way into any games. 'I'm not clever enough to do that'. I do not own any P.D. software, so I cannot understand how I have acquired it.

I have a suspicion that it should be the efforts of a software protection program, that has broken out sometime, as a quick look at the disk in Workbench revealed it to Lucas and not Elite, and this happened after it had crashed and caused to load any more. I used two virus killers on it and subsequent discs that went the same way, but to no avail. Eddiebucker helped in revealing that all cylinders were bad (Raw on both sides and now they all read 'unreadable' with corrupted files).

My latest game, Puff Puff, has died after only two days and is now renamed Lazarus. I've had three. I have erased all programs on my Amiga 1000 and I can do nothing to sort this out. Can anyone help?

P. Manchester, London SW10

Dear PCW,

Volume Two, the PC-1000 Library is at present only available on file (also from Diana).

The group is a non-profit making amateur's club, and in addition to an software library, it publishes a journal, *From a Books Reading Library*, and provides a bulletin board on Windows 3.11/3.10/3.0/2.0. The journal is £10, the yearly, full duplex, with occasional reductions of half price. Much of the software is available via the bulletin board.

J.B. Lister, editor

Lines on Popular

We made the choice to base in the United Kingdom

offering the strength of existing groups.

The towns, mostly parish, were taken with care.

Red, blue, orange and white flags

Why is it burning like Bradman's fire?

It was a chance that Tony and Ida never really cared for politics of Nigeria, the square full of alien weapons and power, the army of clerics and their bodies, bush boy fighters, the corruption for resources and the political mess, 1000 in 100 cycles of war.

More and more and more could ever be granted.

To be reading
Popular Popular 10 to be Popular

Samuel P. Hirsch

Being free - listed in death. The statement is true: but are you living changed more than your death? The only way to discover that is to spend hours working out your situation or to employ an investment to do the same job. Accountants are not always good at calculating your true tax rate or a transfer especially if you have difficulty understanding the complex system.

Where do you stand? Do you trust that local
business can investigate and hand over your hand-
written images intelligently, or do you take steps to
make sure that you give him only what he
deserves?

Personal Tax Planner is a new program from Eidata International for the ST. It is also available for the BBC and compatibles, Amstrad PCW and Commodore 64, and will calculate your tax returns for any given tax year.

Talks many of the newer personal productivity software packages for the PC. Personal Tax Planner is master-driven as opposed to using the QBDI environment. The user need not enter formulas to know what the program can do. The menu system is a tried and tested method of operating software and for this reason works very well. I think QBDI were used in might have hampered the use of the software, although it could have looked more presentable.

Designed by an accountant, Personal Financer offers the ability to enter, edit, create and delete data. The data can be in different forms, such as your main income, any extra income, interest received from bank and building society accounts and penalties, although there are many more options. Once you have input your income for a single tax year, you can have the program compute the amount of tax payable on your income. With options to display or print the data, the program will display, in detail, all your income data and these totals. Finally, you will get a graph which is the tax you should have paid. Of course,

ANSWER

“These are interesting numbers”, said Ben to Paul. He wrote these four-digit numbers on a piece of paper and then continued. Now, what I am going to do is apply a sequence of simple operations to each of these numbers in turn.

Here we have the three numbers:
 1234 4321 4231
 If we add 1 to each digit in each, a '9' becomes a '0'.
 1235 4322 4232
 Then we reverse the order of the digits.

Now, we multiply by 2.

"As you can see, this gives us the original three numbers again. In fact, they are the only three numbers having four digits for which this is possible".

"What I would like to know is if it would work for any four-digit numbers if we were to divide by three rather than multiply by three also?"

Can you help Anna? Read any
advertisements?

SOLUTION TO PUZZLE OF JULY 22

Antennae: *distinct* = *slight* with
a *thin* *ridge* = *thin* and
slight = *slight*.

Selection In the listing shown, sample estimates affected by each of the factors in *test*. Starting with the "Weight" column of the table, these factors are presented - items 100 to 110 - to represent the factors E, F and G. In each case a check is carried out to ensure that each of the values is different from the other two. Once these have been computed as possible values, the value of the factor "C" can be calculated easily - item 110. This process

Money for nothing

Does your taxman have the upper hand? Andrew Banner reviews an accounting package to help you with alien customs.

you need not enter information about the whole tree and can enter only parts.

Because data can be stored in the most basic ways and there is no security, no password, no comparison of data, no anything. In short, anyone can find any compatible file and extract a password.

The biggest asset of Personal Tax Planner is its ability to produce tax savings from what-if situations. If you were considering a renovation, because you could input further data to find the tax payable at present as prospective income. Once you have reached a figure the data can be deleted to estimate tax on your actual income.

Personal Tax Planner appears to be somewhat limited in its scope at first but the data menus are deep and include many income options. The big let-down of the software is the lack of security and the poor instruction manual, which just skims the surface of the software and provides little information on the security of tax prints.

If you are considering this software, remember it is the only one of its kind. After buying it you are likely to need one of the many books on the U.S. income tax system because you can understand the usage of Personal Tax Planner Suite.

CONTENTS

High Integration 0.085-2.7273
Values: 0.00-1.00

where the letter already is on record.

and the *Leiden Collection*.

against the letters already in use to check that no value differs.

What were composed? What kind of person is it who spends half their day locked in a dark room with a power of machinery that cost it obscene? Spectrum owners are identified by being young and hyperactive, in aid and still dealing with the machine they bought when Six-Plus was first created. The second competing British Spectrum owners' magazine has arrived. Spectrum computer users are now theirfor all justified.

Computer Amiga fans look worried, lagged and desperate. They look worried because they realise that the C64 is actually under-powered compared to the



The Amiga version of the game.

big computers and despite all the horrors of prototyping, creating, displaying memory, the real truth is that it is getting smaller.

They look lagged because of the latest game waiting for software to load. Amiga's famous novelties and the Amiga 3D in fact

designed to look smaller were really computer peripherals. Computer Amiga owners are desperate to upgrade but the C64 advertisement is still printing-out.

The average Amiga owner is the unapologetic type on the local computer club. He thinks his Amiga system only has 128kbytes but is desperate to convince that he has had 1024 bytes for years. Amiga owners are worthy adults, often educated by others, where the grown up talk about critical materials, how products is transforming their lives and try to convert the masses when they start playing the latest game converted from the PC.

If your Amiga owner likes Labour and the Trade Unions are still like, your Amiga owner is the one who has the power and that's what he likes. This means enjoying games, a spot of WII, a disk of DSD, ST owners need to be the computer folk but after paying £1000 for

HOTLINES



What hot news in C64land...

games they are now nervous birds.

Now for something useful. Crusader, the legend of William Tell, is coming from Amiga, ST and there is a picture of it on this page. It is all about repression and William's determination to stamp out evil, rescue his son and free the Land of the Free. Load it into your ST, Amiga, PC, C64, Spectrum, CPC and put the Teutoburgis album on the turntable.

He is a hero with a mission, a man determined to stamp out the evil of drug trafficking. He has

already won four with 4, another additional release from Amiga 3D, coming soon, called Falstaff's stage.

Amiga has a new driving game coming - check the pictures which is a kind of Amiga 3D. Baby, instead the Land of the Free, it looks outstanding and features a world championship and gives you the chance to drive a Super Baby against 1000 sports cars. It costs £19.99.

But here now, The 1986 landscape in the Populus expansion that has been changed from basic red land to The 1st Planet.

Mystery of the Missing is a new release from Radiant Arts and has digitised graphics pictures and animation all over the place. It



Another 3D fight city in Amiga land.

Is your task to sort it all out and unravel the mystery in this racing adventure, available on C64, Amiga, ST, Amiga and PC any day now.

David Evans

PREVIEW

Program: French Freddy's Big Top 'n' Fun
Version: Amiga, ST, PC
Price: Amiga, ST £29.99; PC £34.99
Supplier: Mindscape
Producers: Andrew Barker

PROBLEMS SOLVED

Amiga: September
ST: September
PC: September

Just how many events games can you stand? We have got Summer Games, Winter Games, California Games and even Government TightWheezies and I am going mad.

The computer scene has been dominated with these type of games but French Freddy's Big Top 'n' Fun from Mindscape is an exception. Fortunately for all of us this latest offering is very different.

As the name suggests, the game takes place under the big top and is full of humour. The screen reveals 10 rows of 10 in a line right to register as destination land. If you fail to find the display,

you lose your chance. To raise money, you need to perform six different circus acts. They include the high wire, tightrope, trapeze artist, high diving and ever-diminishing water hole and the human centipede.

At the end of the event you are assigned to a panel of hardened, clever characters, who will award a sum of money according to



+ The judges table.

How well you performed in the last event.

Of course, the whole idea of the circus is to get everybody laughing with the stupid humour so many love and like to create what French Freddy does. The judges also employ this laughter method and attack each other constantly. They also change their facial



+ French Freddy's Big Top 'n' Fun.

expressions to match their opinions of the past performance.

The last whilst it's not used to see the circus survive and have some fun, too - French Freddy - if you can't, Freddy will appear during the event and perform some handiwork to try to stimulate your progress.

In all add up to plenty of fun and unlike most other games of this kind, you will never wonder if you get fed up with it. The more you play it, the more you will like it and the more you will laugh.

Freddy's Big Top 'n' Fun will be released on the Amiga, ST and PC in September with all versions following later in the year.

FAX BOX

Program: The Keweenaw Story
Version: Amiga
Price: £24.99
Supplier: Ocean
Reviewer: Adrian Pumphrey

RELEASE DATES

ST: Out now
Amiga: Out now
Spectrum: Out now
Amstrad: Out now

The title of the game did not prepare me for the sight I received upon booting up the game. I have seen some strange things in my time but I was hoping Kew would never come to ask.

The game does not have long transitions from the subsumes to the subsumes, and every second of the transformation is a sheer delight. The shot is brief and blurs. A zombic whale with a taste for Kew has 20 of your friends trapped and has to be freed. Escaping from the 100 plus subsumes with your friends alive is a task to which a

little luck. The landscape is constructed with a series of platforms interlaced with some very strange characters. In the early stages the platformers are the human ones who pop in and out of its shell and throw huge spiked balls and rocks along the platforms.

Then comes the happenings using addition and something small and funny with added fun. While these creatures guard the longword approach to your captured friends, they are afflicted with weird sleep slumber nights. These range from birds dropping bats to bats roosted on ducks, very strange indeed.

With a well placed shot our righteous



• Wacky Whales is a great tag.

hero can attack these weirdos transported to take the battle to the others. And if that was not enough Kew can do a prequel and assist the bats in dreams.

The strength of this programme lies in its speed - it can take as little as 10 seconds to complete a level. In terms, the added enjoyment of the monsters and its mixture of cuteness and weirdness. The game may not sound very violent but it can be upgraded to much deadlier weapons - and they certainly will be needed when you face some of the weirdo large friends.

Gameplay 78%

Graphics 82%

Sound 70%

Overall

85%

FAX BOX

Program: Alien Legion
Version: Amiga
Price: £24.99
Supplier: Oceanstar
Reviewer: Adrian Pumphrey

RELEASE DATES

Amiga: Out Now

One more the plot is minimal. This game has been developed and as the lone surviving hero it is your task to introduce the planet to the lower points of cutting these beams. Define you that the guided tour of anti-matter death where you have an audience on your possible alienation because of large beams is not only dismal but essential.

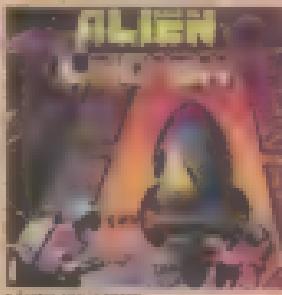
Your character, Captain Commando, can catch a few bullets in the teeth before expiring but holding ground down the energy meter than normally will, on when you should have stayed.

Occasionally when you terminate an alien a high score boosting sequence. If the task is given, contact with a regenerated anti-matter battery is not that relevant though. This can be a fine ability if you kill an alien before it is about on top of you, so the resulting high scores through your character before you reach colour. I read news

of it is a real fact. The areas are small but they get up to 10 levels of levels which are fast, compact, fast style but other more rely big eyed monstrosities not anything from castles, cities, castles or a tower's field in the large in fight technology.

Again from the creatures which move on two legs, commonly known as bipeds, there are basically like the monkeys and cheap. They include everything from abstract shapes to blinding eyes.

Although the shooting element is never the main emphasis is on plan forms. Leaping from level to level will only be satisfactory as holding in you turn off your auto-fire but the blipng across space like a real hero. You have two lengths of jump. Selection between



• Easter egg in space.



• The Easter egg in space is a full-sized piping doesn't that one.

The best results are from holding you hold the joystick in the jumping position. Unfortunately in heated moments you tend to do so for the short jumps when you need long jumps, that ending up the game. There is nothing outstandingly good or bad about this game.

Gameplay 69%

Graphics 64%

Sound 60%

Overall

68%

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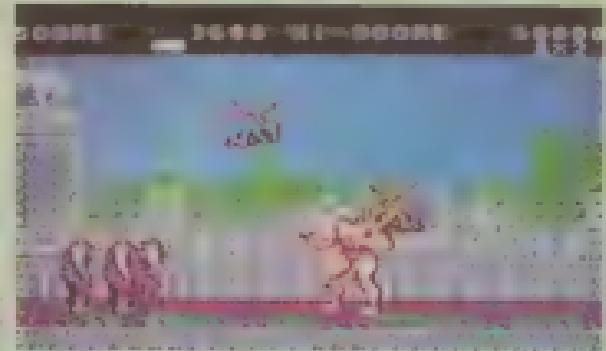
Gobelin: 70%
Price: £24.99
Altered Beast: 45%
Price: £24.99
Three Soldiers: 85%
Price: £24.99
Reviewer: Duncan Evans

Virgin Masterdisk
Telephone: 01-737 8000

Good news for Sega fans is that Virgin Masterdisk, the company responsible for UK marketing, has unleashed a glut of games on to the market. In this last article we look at Gobelin, Altered Beast and Three Soldiers.

I have no idea who the first game is called *Gobelin*, since it is all about the kingdom of *Alben*, a drought, a princess who goes missing, the king running to his deathbed and the adventures of a youth named something or other. You play that youth, on the quest to the north to save the king, to find the princess and save the kingdom from the never-ending drought.

To kill off all you have attività idleness scrolling, with lots of fury prints, you'll be wandering round you'll chop them to bits, fury bits, with your sword. That is easy enough and before you know it you are out and on to the second section. Trapped in a valley of green gloom, or something like that, you go to some mud-style paradise, with four-way scrolling and four-way sword play, which is irritating since there are signs



■ *Gobelin* - a search for the life-giving herb.

say characters. Pop into the little holes scattered around, collect some cute signs of something small and funny and



■ *Altered Beast* - or the dark forces of the shadow again.

usually helpful, then get hacking again, until you have collected seven crystals, whence the gate to the valley of the evil spirits and you are off again. It has average graphics but pleasant graphics and resonant songs.

You may know what it is like when

you have had one drink too many. You are lying, dead drunk and some old mystic says mix from the grave and rescue my daughter and you follow the blade. These guys of telling you that as if they have just got out of the ground, and then again Sunday was in Mrs Jones' Kitchen from down the road. Dear me, even all the characters are Reckless and everything seems to be happening in slow motion.

Alternatively you could play *Altered Beast* because exactly the same thing happens, except that you do not have a hangover in the morning - only the black despair at having wasted money on that poor effort.

Three Soldiers is not much miles or anything, it is all about shooting your way through the various ages of time while battling for your treasured comrades in the ever-ugly rooms of exploration. It is Commando time, with constantly-changing scrolling spaces, loads of one-ups, all related to the particular age, keeping all sorts in you.

You will stalkpope in the bushes and above them, you are armed with a pair shooting machine and can pick up extra weapons along the way.

Just as then alligator or pachinko men and a rocket launcher appears, or a three-way gun or plasma weapon. It just shows these primitives were more advanced than you think.

There are plenty of time rooms and on some of them the action switches so that you are scrolling horizontally.

At the end of each level there is a particularly noisy guardian - particularly large as well.

Great graphics, plenty of inventiveness, tough gameplay and satisfying amounts of violence.

Three Soldiers was certainly my game of the month.



■ *Three Soldiers* - stalking through the undergrowth evading those commandos.

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CD Connection



There is no denying that CD technology is all the rage at the moment, but with machines like the PC Engine, and computers like Amstrad's forthcoming Challenger or the CDmaxx on CD for PCs leading the way, what Rainbow Arts is about to launch is to the unsuspecting public is rather surprising.

There is a telephone socket on the circuit board and it is used to connect the interface to the LMS2000 on the back of the CD player - or the left or right channel if there is not a specific LMS2000 socket.

A word of caution, I tried using my portable CD player in the box, with full volume, and even the volume would load. You have a portable to check in the shop that it will work before you buy.

The following Steps lead to questions about interfacing with the CD64, Amstrad, and other typing whilst the menu loaded from the question in about 10 seconds.

The menu offers 30 games and after selecting one with the cursor keys - joystick are should have been an option - you are given a short numbered program as the Challenge Disk that is accompanied, press the question and the game

loads around one-and-a-half minutes, with four titles per minute in the original menu, so you are talking 10 minutes of programs. This is not really surprising for new technology, is it?

As an added treat there are seven tracks of the famous musical talents of Chris Farlowe, a kind of German David Whitaker, which can be played through your speaker, like a regular CD. The complete game, in which you have one only, take another 20 minutes. It says there are 10 of them - in the manual and on the box - but there are not.

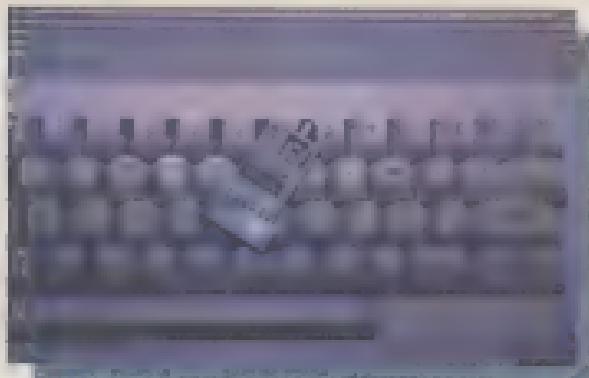
So for what you have is a moderately quick - compared to tape - alternative method of loading programs. Except that you can only read from the CD, you cannot save anything on it, and it has to be treated as reading except a novel way to load 30 games.

Then you look at the games. You get classic (Michigan Magic (platform), Laserblaster, Micro Alchemist, Impossible Mission, Impossible, Amstrad, Rainbow's Eye, Jack, M.U.L.E. and PEST II. Apart from Laser, which was a Rainbow Arts game anyway, the rest of the collection is prehistoric, the newest dating from 1986.

It is at this juncture that you realize that Rainbow Arts has not many games and even less original. What you are paying for is a novel way to load 30 old games - and less potentially fun. Even a spin of 160 which may need to be changed around the more basic you are, cannot be. Only if you had a CD player, did not have a disc drive or any of these games and wanted a collection of semi-obscure would this system come to be worth paying for.

CONTACTS

1st CD Edition
Rainbow Arts
Contact: Barrington Henfrey
Price: Circa £25; to be confirmed
Tel: 01-279 0333



■ Above: Rainbow interface, the interface shown has a problem.

■ Right: Your CD needs to be, but the games are off-beat classics.

The CD Edition is a package which offers 10 games on a standard CD, a fairly clear interface menu and a CD, by 1988, however, all but the Challenger II, all you have to supply is a very standard lead and a reasonably expensive compact disc player.

The concept behind the package from the West German company which claims for Rainbow that any hardware restriction is that, if you have a CD but not a disc drive and are looking for fast data storage, or faster-loading games (in this case, all you have to do is plug the interface into the parallel port of the computer and connect it to an ordinary compact disc player).

It is a strange thing really. I know of very few people who have a CD and no drive but own either a CD player. Perhaps this package is aimed at someone doing at home who can bypass their parent's player.

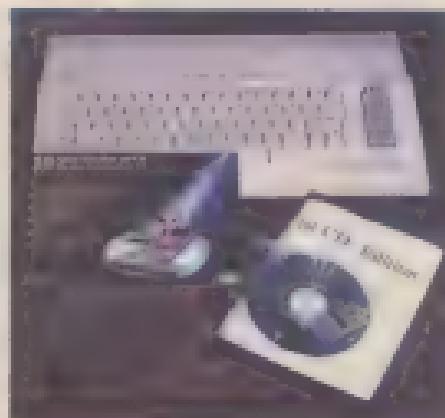
You can get to grips with this bizarre concept by plugging in the very first looking interface. It is not hard, as dropping the CD on the floor with a bang is likely to load it in finally

if your choices load in 20-30 seconds.

If there are loading differences, up the other channel in the program - are recorded on both. If that does not work you add 20 to the track number - all 10 programs - are recorded twice.

If you are thinking I have a disc drive anyway but I have a CD player and this sounds like a cool idea, then tell yourself it is not.

For one thing you are not exactly reading a CD - check a library with code. Both kinds of programs



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Sir Clive speaks



Since forming his first company, Sinclair Radionics, in 1964, Sir Clive Sinclair has probably invented more ground-breaking electronic goods than any other individual. From radios to wristwatches and computers to cars, it can be said that Sir Clive is a man who has been there, seen it and done it. His quest for introducing something new and different often can reach the obsession stage, like his 10-year quest for perfection in producing a pocket television set.

Even now, despite the financial failings of the CD website and the best of many jokes, Sir Clive is still working on CIV and CIV2 watches which some day will make him in the production lines and hopefully on to the Pausa.

It seems probable that it is this obsession which makes Sir Clive tick. He is a man who believes that his products should reach a many people as possible and in as many

It's been a hell of a ride, but I've had a lot of fun and I've had a lot of success. I'm not my own customer, though, I'm a bit of a collector, and I'm not sure that anything else on the market is half as good.

in the shade of sunlight. One has only to look at what Sir Clive has produced and you can see clearly that his products are sensible. The calculator, computer and car were all much cheaper than anything else on the market, and half as good.

Sir Clive is not a man who copies; he took on the Japanese and Americans at their own game and won. It was because of that and his constellations. It's only that in 1983, at 32, Clive Charles Sinclair was knighted, the recognition for a man who created a multi-million pound industry and that does not even enter in the hardware.

Without the name Sinclair, the software giant's plants of Stevenage, Hertfordshire, Herts would not have enjoyed their massive success. Even the computer publishing industry owes its due to Sir Clive, with three magazines bearing his name in their title.

With Sir Clive's no-nonsense approach to computing, he also allowed companies to make such added extras as joysticks,



••••• keyboard and many other items for his range of machines. In short, he allowed others to create businesses via the products he produced.

Steve Jobs is not generally known as a man who seeks publicity. It is several years since he spoke in *Popular Computing Weekly* at some length, so the following interview will show.

Pop: It is now almost 10 years since the Mac appeared, did you think home computing would be as big as it has been?

Steinlein: Not quite as popular. I certainly hoped it would be this time and hoped it



would be something which captured public imagination. We set out to try to sell to the general public, as opposed to just the enthusiasts around at the time. It grew much bigger than we hoped.

Pop: Of all the computers you have released, which is your favourite?

Steinlein: I think in terms, the 2640 was a good little machine. I am very pleased with the 2600. I used always to look forward to the next machine rather than back.

Pop: How is progress in wallet scale integrated?

Steinlein: It is coming along well. It will still be a fairly memory driven and the initial sales will be to the home computer enthusiasts. It is still going to plan.

Pop: Can you tell me plans for a powerful processing device we gather you are developing?

Steinlein: That work is basically secret so we cannot say much about it, but it would be foolish to deny it.

Pop: With Amstrad, Psion and Project releasing very lightweight pocket PCs, is this an area into which you have plans to move?

Steinlein: Very much not so. I do not see the logic behind those machines. The message, in my opinion, is that they are PC-compatible. Well, they are simply not, because it is very important to realize when PC compatibility really means. It means for



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The 2600 - integrating logic is the theme, for Steinlein simple is elegance.

any computer and compatibility, that is to say, it must have a proper keyboard, a proper display and, in my opinion, it must have a drive. If you remove any of these or compromise on any of these the machine ceases to be compatible and you might as well as the whole lot. I cannot see the point of these products. I may be missing something. I do not see them and will not decide they will in some degree.

Pop: Do you use a BBS when you do business?

Steinlein: I do not, but then I do not use computers much anyway. I do not type and do not have a computer front. I use a pen and calculator.

Pop: With so many games appearing on the Spectrum, do you play any?

Steinlein: No, not at all. As regular people would play games with them, the principal idea behind the machines was to introduce people in the art and science of

computing. I do not ever play games myself.

Pop: What is happening with the portable telephone?

Steinlein: Scientific Research formed a company called Key Communications and the work is now completed. The product is now in production and will soon be on the market and they have made contact with Motorola and Motorola to be one of the licensees for the telephone system. The telephone should be a personal object like the calculator and will be priced at \$150.

Pop: You once had plans for a Stock Market flotation. Do you have plans to pursue this idea again?

Steinlein: We have no plans at the moment. I do not rule it out but it is much more complicated because Scientific Research has moved its technology out to several companies (Scientific Research, Cambridge Computer - and they might as well not be public and Scientific Research might as well not be public as it is now).

Pop: Will 1982 benefit British computer companies and yourself?

Steinlein: Broadly anything which opens the horizon helps but whether the horizon will come closer in that area we all have to wait and see. Clearly we will have to develop keyboards for different countries. I do not see that changing. I think it is a



popcorn-potato-chips



Mathematical levels test in practice I am not sure there will be a big change. I am concerned about the protectionism that seems to be creeping into Europe. I am worried about Europe taking up tariff-structure chips coming into Europe. When I think of what companies in Europe might be at a greater commercial disadvantage than companies outside Europe because the Common Market might have insisted on very high prices for memory chips, for example to try and protect the internal



And in only just begun. There needs to be a lot more things to be done.

Industry which will move up the computer manufacturers.

Pop: Do you have plans to move into the development of CD-ROMs?

Stefan: No, I think the application is very limited and they have been pre-tapped. It has much to offer games if it is cleverly used.

Pop: Would you ever consider releasing a hand held game machine?

Stefan: I am not really so interested in games. I see the appeal but that is not the

field we are in. If we could see a way of doing something dramatic, and we have looked at that in the past, we would do it. We are interested only if we can do something useful in the engineering side. We are interested in revolution, initiatives and breaking new ground and if that happens to be in the games area, we will do it. The games area does not offer us that opportunity at the moment.

Pop: How do you view on computing changing through the years?

Stefan: No, I think it is going the way I see it going. I think we are getting closer to the days when students will all be carrying computers because the IBM is being used a great deal by students for that purpose. That will change computer literacy greatly. From that will emerge a nation of people who are completely familiar with computers and I think the next generation will have computers in the home which are highly intelligent and start to give advice to

Pop: Is it safe for computers to start having intelligence?

Stefan: Setting it without its risks and I think that has plenty of risks but it is a question of getting it right. I do not think it is a question of reducing the power of the computer, it is a question of how it uses its power.

Pop: Do you still have ambitions?

Stefan: Absolutely. I have a hell of a lot I want to do and I see myself at the beginning rather than the end. There are two areas which concern me most and they are my long term products - artificial intelligence, for which I mean machines which really do intelligent things and mobile vehicles.

Pop: Regarding artificial intelligence, can you put metals into machines?

Stefan: Whether you call them robots or not, I do not know. I think you need to put constraints into them. It is something interesting that I will do.

Pop: Have you made any decisions not to release any products through fear or worry they are too intelligent?

Stefan: I have not developed products of that kind but the day may come when we will have to look carefully at the consequences of products as they become more general. I can certainly see the day when our might robots goes berserk - when they become so realistic that they are just as real as life and that people can become attracted to them as they do attracted to drugs, one would be very cautious about introducing such products.

Pop: What motivates you to achieve what you have achieved?

Stefan: Well, mainly the desire to change the world in a small way, to bring out products which will make people's lives more interesting or more useful. The pocket calculator was just a tremendous thing for

people to have, as too the personal computer and I feel passionate about the portable computer. I want to produce new kinds of products which will change people's lives for the better. The home computer is a clear example of how it would enrich people's lives and now I am developing this bicycle.

Pop: Bicycle. It does not sound very electronic, can you further expand?

Stefan: The idea is very simple. It is the best way to get around town but a very inconvenient object when you arrive. If you can suffer the inconvenience when you arrive, you have a very exciting product, so I'm working on that. It will be a portable bicycle. It will not be electronic and it will be two years before it appears because it is a very big job. To do it you have to use radical materials and have a radical design. The purpose is that when you arrive at your flat, office or underground station you can then fold it instantly so that you can take it in - rather like an umbrella. It must be dramatically lighter than a normal bike - and the lightest bikes have been the same weight for 100 years.

Pop: How do you feel on reflection about your portable TV?

Stefan: Perfectly timed product. We thought there would be a large market for such a product and so did the Japanese but the world market is still very small.

Pop: Can you give any special preview of products you have in mind?

Stefan: The main thing at which we are working is a PC-compatible portable. It is



one way off and we in the same category as the BBC and also the very advanced computer chip about which we didn't talk so much.

Pop: Aside from science, do you have any other hobbies or interests?

Stefan: Yes, I am very interested in music, reading, poetry and mathematics.

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Stopwatch

Steve Carter

WHEN developing a program, in most cases speed of operation is a very important factor in its success or otherwise. How do you establish the fastest way of writing a routine you think may be running too slowly?

I developed this routine fragment to run the Internet check so that I could easily

otherwise it is a program and use the effect on the time it took to run. It is a sub-program so that none of the variables in the routine will clash with the main program when it is called on to the end. The two variables which must be placed in the main program have long names, so that is more unlikely that they will clash with any others. Do not add it on the end of your program and run.

FiveTech = TIMEit/FastDraw = DATAS
at the end of the test we can read in these

and
SecondPing=1100000
coefficient=0.0001
at the end, followed by the call to the
subroutine =

The program will cope with timing a program over several weeks but if the interval check should go into the next month your results will be incorrect, so if the timing is to go into the next month, cancel the interval check in, say, the last day of the month.



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A day at the Beeb

Duncan Evans joins the resilient species of micro owners at Ally Pally for the BBC Show.

Owners seem to look like their dogs these days. I've had quite 100 responses since adopting the motto of their machine. At the BBC Show of Electronic Follies that was very evident. Owners bring babies and enclosed mobiles and micro-comps. BBC Whizzers certain managers round the child-friendly mobile phone off trade stands owners, looking for a quietiated park spot to sit and watch what they would do all the time they had to let the machines overtake them.

The BBC may be captured and dead as far as micros were respecting but has their never seems to worry them and that is they avoid pointing out that the machine they bought or Micros Today was not only for playing Battleship or trying to beat the Queen Bee's queen.

As far as the show was concerned the BBC was not dead but with only Standard Computer Concepts and Superdrive having any real commitment. These were not many miles off but long into the coffee. It was the day of Micros revolution in a major way likely to launch into the corporate mainstream.

PCW has never failed to offer the BBC's *Wings* software - £1,295 plus - was £2,000.00 and about £2,500.00 and its 1985 depreciation basis of four for predicting similar delivery for £295.00 - and £300.00 on the forthcoming *Topographic*, based for reasons and new advances, has gone down with a range of booklets, tapes, records and, of course, support programs dedicated to what, well, assistance. From a member of Friends of the Earth, you should telephone Topographic on 0333 344003 for details. If you want your children to know about the effects of pollution.

Substantial

More startling software, this time from Microsoft, at £27.99 consisted The Space Invader and costing £12.99 for the use BBC. It used about £20 and £22.99 for the forthcoming. If you fancy something a little more substantial you could try the forthcoming *Memory Systems* - £24.99. *Micro-Plus* which claims to be a complete BBC package for the entire BBC range of £30.

plus £4.47 and £1 postage. Compatible with New Video-Home and Worldwide, it offers Micros, BBC and other writing to list the Green and Guide (Green Personal Organiser £29.99).

Topical

Perhaps the biggest splash for BBC owners made by Impact Software - with 124444 Impact showed some sources for its Leaderboard stage, listed their typical because Mark Colborn was the Open champion in the latter week - and after a new football game

image resolution being 256x128. Availability is later 1/90 and pricing is expected to be less than £200.

Something of a challenge was offered by the Amiga Videopage Expansion Card which allows sixteen million colour definitions, including frames of 1280x1 of a second and using its own display memory to produce 1200 colours for the sixteen images which can be used with most art packages. Gamma Video Electronics Ltd on 0171 261211 for details.

To suggest the power of the Amiga you could always try most of the things in the Disk Corporation - 0895 502511 - catalogue. In general hard drives from £229.00 (20MB) to £396.00 (50MB) (20MB) and cartridges from £229.00 (20MB) to £396.00 (50MB). If you want to play chess or even make your own multi-player games - £11.95 for a 16x16 screen, then you can play chess check, in other words checkers, for £19.95.

For word processing with extra facilities like database search, data entry and spreadsheet generation, Premier from Chris Software costs a good choice, the price is £125 plus VAT. Contact 0793 522020. If you might like to try Impression from Computer Concepts, it is powerful yet easy to use, costing us £295.00, a good example of producing word processing for the BBC.

Average

Amiga games are a little like velvet - a John Lewis night shirt - but there are as many of them around, mostly average renditions of classic arcade games. Considering that the Amigas are similar current classic games *Breakout*, *Breakout*, *Breakout* - *Breakout* - *Breakout* and this is still 16bit we are not really surprised. They are reasonably priced, though, at £14.99 for the current 16bit, which is £10.99.

Chris Ellis, behind the usual educational products, was holding in an incomprehensible game called *Breakout* (£14.99) and selling some poor ones like *Overhead*, *Memory* and *Memory* and *Memory* (a bit broken).



Illustrated as an educational unit, BBC owners can still enjoy some impressive software.

Amiga Games is a Videopage AmigaDisk 128MB cartridge featuring overhead games and a Breakout cartridge.

Superior Software has the *Review* in the *Programs* section and is developing its own version of *WPS* (95), which should be available in autumn programming, as detailed.

£1.95 to the press world with *Chris*, a Market catalogue from *Chris Software* - 0793 522020 - resulting the user in one colour, sequential colour, software, and machine resources.

Possibly the most over-exploited of the show were the graphics and display software for the Amigas. *Ring Vision* - 081 20 00001 - had a large section of hardware units for the Amiga series, including the *Chris* 1280x1 of video memory and standard cards. One of the more impressive things at the show was the *Breakout* 16bit resolution colour display. Images are displayed in any Amiga 16bit colour mode, with the

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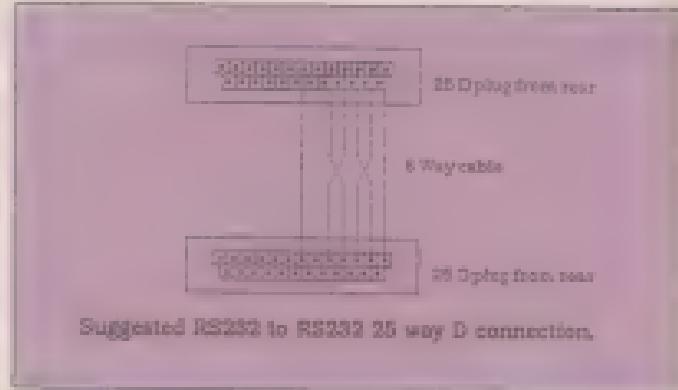
Amiga multi-user

Q I have an Amiga 1000 and I am using it as a multi-terminal and I would like to know if it would be possible to use the two together. I know that the Amiga multi-user net is a multi-user? The terminal has a standard 8-way serial and is RS232-compatible. It is necessary to connect, could you please give a wiring diagram to connect the two?

A It is possible to use a terminal with the Amiga and to get it to work with a multi-user kind of way. You will need Amigacards 1.0 and the AUS device.

This is for the AUS device has done and better say that being transferred. To set up the Amiga, make sure both machines are off before connecting them, the Amiga serial chips have a habit of going kaput if you connect things to them while the machine is powered up.

Now, from the Amiga and switch on the terminal, set them both to the same baud rate, e.g. 9,600 bps and eight bits. I hope this, as partly. Then enter MOUNT ALL on the Amiga to set up the new userdevice. Follow this with MOUNT



Suggested RS232 to RS232 25 way D connection.

AMIGA AUS which sets up a new CLI window for drivers all input and output via the RS232C. You should see a prompt - say > - appear on the terminal. If so, you are in business. If not, check the speeds, serial length and so on, and then the wiring of the connecting cable. The suggested wiring above works for my Amiga connected to an ST, i.e. both serial ports are the same pinouts all that needs to

be done is to reverse RX and TX, and RTS and CTS.

Unfortunately, the terminal has a number of limitations and obviously cannot run graphical-based applications. It can really operate with the CLI commands as other applications will not operate through the serial port.

If the Amiga had more than one RS232, it would be possible to attach a few terminals to the

system but the machine would show a good deal, especially when performing this function.

Unfortunately, if you do not have Workstation, etc, it is well worth spending the extra £15 or so for the upgrade. It is available from most Amiga dealers and contains most of the CLI commands and provides a number of new displays, plus an improved CLI called CUI.

BBC buffers

Q I am writing to you because you seem to be one of the few people who can answer the odd little question I thought I

- 8-kilobyte buffer
- 16-kilobyte
- 32-kilobyte
- 64-kilobyte (maximum output)
- Sound channel 0
- Sound channel 1
- Sound channel 2
- Sound channel 3
- Speech

STUFFTE 160 gives a character from the specified buffer and STUFFTE 161 inserts a character. They can be accessed in two ways, e.g. "FF 160 00 00 00" as a line the keyboard buffer. Another useful way is to use the fact that the C64L command uses the contents of A0, Z0, and Y0 for the four registers A, X, and Y. So, to perform "FF 160,00, the following snippet of program would be used:

A0 = 00,00,00,00

CALL STUFFTE

A procedure is to this is known, sending characters from the STUFFTE memory buffer requires a little more fiddling. The operating system does not return values in A0, so an additional command like STUFFTE must be used to get the contents of the registers.

```
DEFPNPROC(C8)
A0=128,00,00,00
Y0=A5C,(C4)
CALL&FFFF
ENDPROC
```

BBC RS432 transmit procedure.

```
DEFPNRX
REPEAT
A0=145,(7%a,1
T0= USR(&PP4) AND &FF0000
UNTIL T0<>0
=CHR%(T0&10000)
```

BBC RS432 receive function.

Basic

Peter Mills of Melton Mowbray, Leicestershire, writes:

Q I know you have been asked this previously but I cannot find the book issue with the answer. Could you tell me what book stands for?

A Software All-purpose System (its International Code).

New ST mouse

Paul of Telford, Shropshire, writes:

Q Recently I had an accident whereby I broke my ST mouse. Could you tell me where I can get another and how much it would cost?

A A few Amiga dealers supply new mice. The average price seems to be about £10. Try Microspina, 012 494 2088, Micro-Link Electronics, 0126 747077, 125, Appliance Reference, 017 58498, 8123.

Lathbridge Computer supplies a much less expensive, £10, ST-100 201116.

Keeping up with the Clives'

When I bought my ZX81 with its quirky BASIC package and square keyboard I still mainly used it that I had missed a new stage of my career. Obviously I had become part of the computer revolution instead of being an outsider. Many of the programs being published then were fairly elementary and weren't too basic. There were no graphics characters which suggested some serious games.

posed action the author and which were also closed by partially closed brackets.

You should understand the programs, change them, improve them or write better ones. You will like a pleasure and the letters and pictures on the magazine mentioned that, we are all involved looking for an understanding of this mysterious experiment on which we had lost our hands and looking for problems to solve on it. This has of obtaining a second mouse or even becoming fully independent in work in the comfort of your own home (backroom).

The limitations of the Z80 are quickly become obvious and I graduated to the Commodore 64 to get my hands on a real home computer with reasonable high-resolution (graphics, colour, sound) and a proper keyboard. The buttons had expanded. Starting seemed impossible and I made some progress at it by using the computer for word processing and printing a few small programs published then. It appeared that it was possible to reach the level of the professionally made home applications.

I did some business programing and learned as fast as I could when the computer books didn't

tell you - professional level programming is where hard words calling for a high degree of risk, conservation and attention to detail. They do not mention the need to acquire the ability to second-guess what an un-persuaded user will make of your concerns, test messages and the need to make the program bug-free and error-free.

"Winning programs is not easy as it looks and I expect that there are many companies and investors that are suspicious when someone abandoned the dream of creating a company.

Methodology and results

Alonso had good front tables in detailed figures which matched with each other; the back-ground music was now recognizable music and the scenery rolled smoothly across the picture. Companions appeared to encourage graphics programs were to develop their best work.

The quality of some of the swinging pictures was so good that you had to look twice to see if they were not really photographs. There were these sequences of swinging, short, rhythmic, with increasing and changing effectiveness. These are beautiful things which must have taken hundreds of hours to create. Some of the finest sequences appear on television when it is becoming increasingly difficult to distinguish the computer generated from the real.

I can only stand back and admire such industry. I know I cannot stimulate it. I do not have the equipment, the experience or time. Nor am I likely to acquire it. The technology has all moved out of my reach and I cannot keep up with it. I have moved on. I stand back to become a user rather than a creator. It is not that I have lost interest – the need to, the desire to, the longing to, I agreed those times writing stories is still close to me.

Fortunately, no program has yet been written which can generate even simple articles like the recent being out of the manuscript of *Computing from the advances in arachnology*. Patients sleep my dreams, whereas the stage of those early days goes?

NEXT WEEK

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ELECTRONIC TIMES

Intergenerational Population Health Outcomes
Health Policy Perspectives - see US
have a lot to talk about. We should
a huge opportunity in the education and
Healthcare for

卷之三

See Phillips' post on another article, entitled "Wrestling With Justice," in the May 12, 1997, *Journal of the American Bar Association*.

1470

Long and thoughtful views on life have a way that brighten you - if you have time to look.

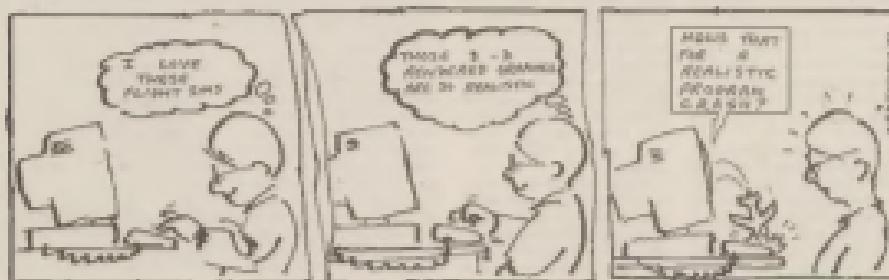
PRINT DUH

Mr. Justice Fisher handed out his opinion, saying, "I hope and pray that the people of this country will never again be asked to do this."

100

All the **LATEST** news from the U.S. and the U.S. middle-class with these **Comments**, given **Latitude**, not **longitude**, of the best writers of the world and greatest **Letters**. And **Times** **Play** might just come in today by - and -

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TARGHAN



Targhan

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over.

far from your village, a bad keeps the
sewer, such a powerful bad that he wants to return, a
creature having a mind that they are given again.

Targhan is probably the most surprising game you'll ever play.

Targhan is an adventure action game with more than 100 landscapes and
40 different characters. The game is playable on either keyboard or
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game will run on both colour and monochrome
systems.



Silmurils

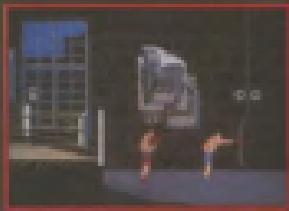
To enter our competition please send your warranty card to
TARGHAN and complete the following:

I like this game Targhan because:

Send your entries to: 1007 1 CHAMPS ST, WILLESTAD ROAD, SANTO DOMINGO, DOMINICAN REPUBLIC 20201 or 1007 1 CHAMPS ST, WILLESTAD ROAD, SANTO DOMINGO, DOMINICAN REPUBLIC 20201
Closing date September 1, 1990.

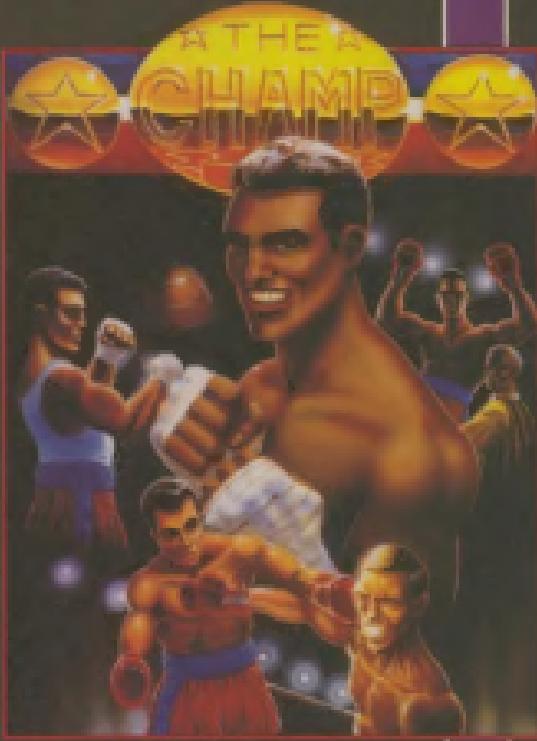


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LINEL Products MERIMPEX Ltd
Am Schlegler Weg 2, 5490 Kaisers
Principality of Luxembourg
Tel: 01 541 75 200 68
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